PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Brendes et al.	Group Art Unit: 2142
Serial No.: 09/770,316	Examiner: Hieu C. Le
Filed: January 26, 2001	Docket No.: 1322/49/2
Confirmation No.: 7530	

For: METHODS AND SYSTEMS FOR PROVIDING CONVERGED NETWORK MANAGEMENT FUNCTIONALITY IN A GATEWAY ROUTING NODE

SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

We, Dan Alan Brendes, Joseph William Keller, and Seetharaman Khadri, being the inventors of the subject matter of the claims in the above-referenced U.S. patent application, declare as follows:

1.   Prior to March 31, 2000, we produced a working feature in the United States, referred to as the MTP Primitives Feature, that performed the steps claimed in the above-referenced patent application of detecting a network management event regarding the status of an SS7 node residing in the SS7 network, in response to detecting the network management event, generating a data network management message indicating the operating status of the SS7 node, and

sending the data network management message to nodes in the data network that are adapted to communicate with the SS7 network.

2. As evidence that a working version of the MTP Primitives Feature existed prior to March 31, 2000, we attach Exhibits A and B, which will now be explained in detail.

3. Exhibit A is a document entitled IP7 Secure Gateway 2.0 MTP Primitives Software Unit Test Plan (hereinafter, "MTP Primitives Testing Document"), which describes testing of the MTP Primitives Feature. The MTP Primitives Testing Document was created in October of 1999 and describes testing of the MTP Primitives Feature that occurred in October and November of 1999.

4. In Section 1.1, the MTP Primitives Testing Document indicates that its purpose is to verify the correct operation of the MTP Primitives Feature of the IP7 Secure Gateway 2.0. The MTP Primitives Feature is the same MTP Primitives Feature referred to our in original Declaration under 37 C.F.R. § 1.131 filed in the U.S. Patent and Trademark Office on April 7, 2005 (hereinafter, "original Rule 131 Declaration"). The IP7 Secure Gateway 2.0 includes an Eagle® STP platform with SS7 over IP signaling capabilities.

5. In Section 2 of the MTP Primitives Testing Document, Table 2 indicates that the Test Plan for the MTP Primitives Feature covers compliance with the Feature Description.

6. The Feature Description referred to in the MTP Primitives Testing Document is the same MTP Primitives Feature Description referred in our original Rule 131 Declaration.

7.   In Section 5 of the MTP Primitives Testing Document, line 1 of Table 14 indicates that 34 of the 48 Feature Description (FD) compliance tests were completed and the pass rate was 100%.

8.   In Section 5.2.1 of the MTP Primitives Testing Document, Table 15 indicates by number the FD compliance tests that were completed and the completion dates. Test numbers FD2-FD14 for which data is not completed in the Table 15 were assigned to Seetharaman Khadri.

9.   Exhibit B is a status report from Seetharaman Khadri for the week of 11/08/1999-11/12/1999 indicates that 36 of the 37 tests assigned to him were completed successfully.

10.   The tests that were completed include tests, such as FD2, FD5, and FD7 referenced in the MTP Primitives Testing Document, that tested the capability of the MTP Primitives Feature to detect a network management event regarding the status of an SS7 node residing in the SS7 network, in response to detecting the network management event, generate a data network management message indicating the operating status of the SS7 node, and send the data network management message to nodes in the data network that are adapted to communicate with the SS7 network..

11.   The development and testing of the MTP Primitives Feature were completed at Tekelec's offices in Morrisville, North Carolina.

We hereby declare that all statements herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and

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the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dan Alan Brendes (signature)

_____
Dan Alan Brendes

1/25/2006
_____
Date

_____
Joseph William Keller

_____
Date

_____
Seetharaman Khadri

_____
Date

Enclosure:
    Exhibit A: IP7 Secure Gateway 2.0 MTP Primitives
    Exhibit B: Status Report for week of 11/08/1999-11/12/1999

the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

_____   _____
Dan Alan Brendes   Date

_____   __1/25/06_____
Joseph William Keller   Date

_____   _____
Seetharaman Khadri   Date

Enclosure:
      Exhibit A: IP7 Secure Gateway 2.0 MTP Primitives
      Exhibit B: Status Report for week of 11/08/1999-11/12/1999

the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

_____
Dan Alan Brendes

_____
Date

_____
Joseph William Keller

_____
Date
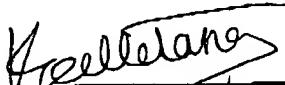
_____
Seetharaman Khadri

Jan 25th, 2006
_____
Date

Enclosure:
    Exhibit A: IP7 Secure Gateway 2.0 MTP Primitives
    Exhibit B: Status Report for week of 11/08/1999-11/12/1999

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TEKELEC

Title:	IP7 Secure Gateway 2.0 MTP Primitives				
Doc Number:	TP002911	Revision #:	1.2	ECN:	

NSD®

Software Unit Test Plan

IP7 Secure Gateway 2.0 MTP Primitives

Joe Keller

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The latest approved version is located under version control.

CHANGE HISTORY

Date	Revision #	Author	Revision Description	Approved
10/11/99	1.0	Keller	New document	No
10/28/99	1.1	Keller	Updated with comments from review	Yes
11/8/99	1.2	Keller	Updated with test results and added test cases DT-10 and DT-11 to test ISUP/SCCP.	No
3/10/2000	1.1 (documentum)	Davidson	Add tests for normalized Class 1 SCCP	No

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LIST OF FIGURES

1. INTRODUCTION

1.1 Purpose

This document specifies the testing that is necessary to verify the correct operation of the MTP Primitives feature of IP7 Secure Gateway 2.0. This feature provides status of point codes in the SS7 network to IP connected network elements through the MTP primitives. These primitives function similar to the MTP3 network management procedures for TFA, TFP, TCA, TCP, TFC and UPU.

1.2 Scope

This document is intended for engineering and the design verification test group. The reader is expected to be familiar with the IP7 Secure Gateway, the TALON test tool, MTP3 network management procedures and the MTP Primitives Detail Design as documented in [5].

1.3 References

[1] *TEKELEC Acronym Guide*, 070203M0.MWD, Revision 1.14, Tekelec, August 1996.

[4][2]*IP⁷ Secure Gateway 2.0 Product Functional Specification*, pf002525.doc, Revision 1.5, J. Mason, Sept. 1999.

[5][3]*IP7 Secure Gateway 2.0 MTP Primitives*, fd002782.doc, Revision 1.1, Tekelec, October 1999.

[6][4]*Transport Adapter Layer Interface 2.0*, tr002733.doc, Revision 1.5, Tekelec, October 1999.

[7][5]*IP7 Secure Gateway 2.0 MTP Primitives*, dd002910.doc, Revision 1.0, Tekelec, October 1999.

[8][6]*Tekelec Implementation of TALI*, tp002892.doc, Revision 1.0, Xu, October 1999.

1.4 Acronyms

In addition to the acronyms defined in [1], the acronyms below are used in the document.

Acronym	Definition
IP-NE	Internet Protocol Network Element
IP-SCP	Internet Protocol Switching Control Point
MGC	Media Gateway Controller
MTPP	MTP Primitive
RCT	signalling-route-set-congestion-test
SG	Secure Gateway
TALI	Transport Adoption Layer Interface
TFA	Transfer Allowed
TFP,	Transfer Prohibited
TCA	Transfer Cluster Allowed
TCP	Cluster Prohibited
TFC	Transfer Controlled
UPU	User Part Unavailable

Table 1: List of Acronyms

2. TESTING STRATEGY

The IP-FE will be simulated using the TALON test tool. TALON is expected to support the TALI 2.0 protocol and provide user interfaces to generate TALI packets that will test all aspects of the MTP Primitives feature. This feature mainly impacted the SS7IPGW GPL. However, since common files did change, all affected GPLs will be made with the common files and run during execution of this test plan.

The test cases should address the following areas. If an area is not applicable please put N/A in the area's section:

> **FD Compliance Testing** -- Any testing that is related to a Feature Description. Particular attention is given to the requirements and objectives of the FD
> **Specification Compliance Testing**--Any testing that is related to an external specification. Particular attention is given to the requirements and objectives of the compliance document.
> **Design Testing** --Any testing that is related to a TEKELEC Design Specification
> **Line of Code Testing** -- Any testing that ensures all code paths are executed, particularly default cases and error cases.
> **Performance Testing** -- Any testing that is yields quantifiable results.
> **Command Scripts** -- Any test that tests EAGLE commands
> **Load/Stress/Volume** - - Any testing that is designed to isolate and stress a particular subsystem.
> **PR Testing**-- Any testing related to a FD referenced problem report
> **Fault Insertion Testing** -- Any testing that purposely inserts faults into the test
> **Sanity Testing** --Typically would be a set of standard test cases. No unique test cases would appear here.
> **Regression Testing** --Typically would be a set of standard test cases that focus on the area affected by change
> **Upgrade Testing** – Specific upgrade testing is necessary if the FD includes upgrade impact.

	Covered in Test Plan	Not Covered in Test Plan
FD Compliance Testing	√	
Specification Compliance Testing		√
Design Testing	√	
Line of Code Testing	√	
Performance Testing	√	
Command Scripts		√
Load/Stress/Volume	√	
PR Testing		√
Fault Insertion Testing	√	
Sanity Testing	√	
Regression Testing	√	
Upgrade Testing *		√

Table 2: Test Coverage

* Not always required (see text above for Upgrade Testing for explanation)

2.1   Test SETUP(S)

2.2   Eagle Station Setups

The following figure depicts a sample configuration for an EAGLE station that could be used by this test plan. The following figure shows a sample network configuration where the shaded box represents Eagle 201.01 which is connected to Eagle 201.06. Using this configuration, multiple traffic patterns can be run. For example, ISUP traffic can be generated from a MGTS shelf routed to TALON via one of the SS7IPGW cards. TALON can flip the OPC/DPC and send the message back to the originator. Another possible configuration involves the MGTS generating traffic that is routed to the other Eagle which perform global title translation on the traffic sending the MSU back to the originating Eagle. The originating Eagle could then global title the traffic to the originating MGTS link.
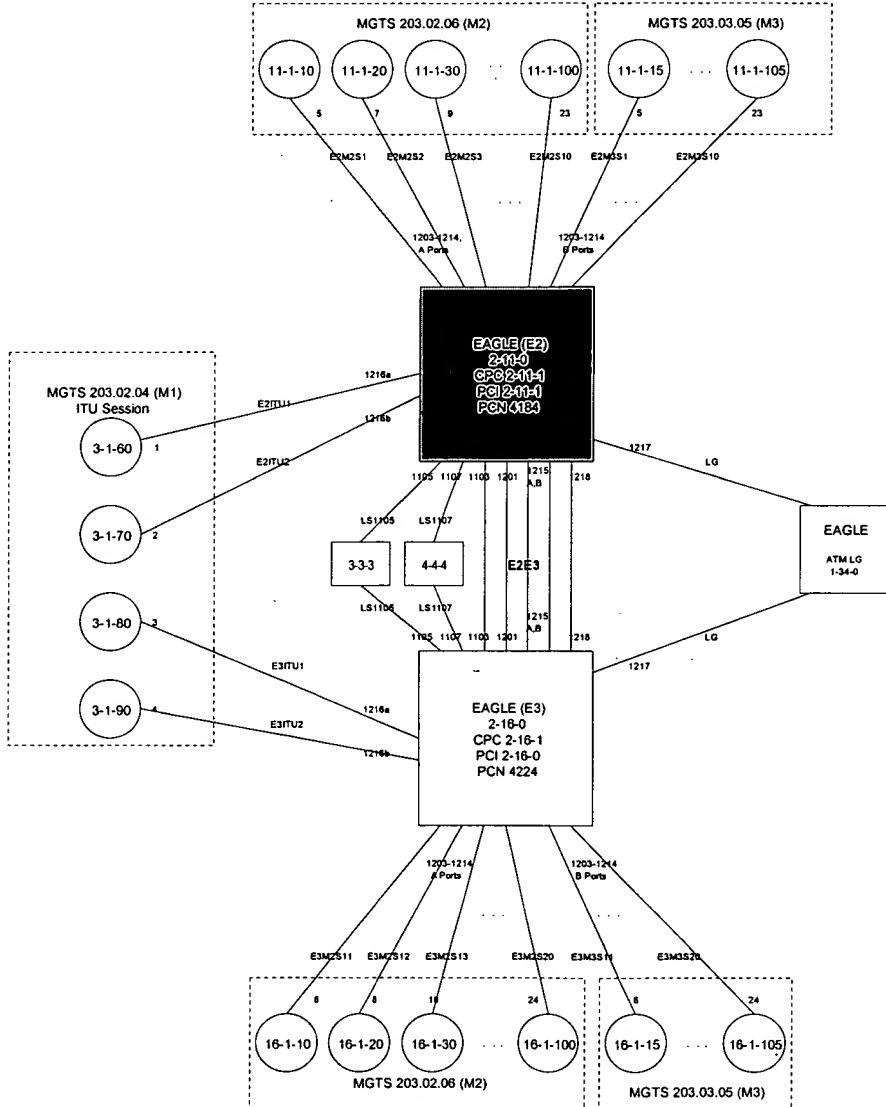
Figure 1: Eagle 201.01

SYSDATA Command File	n:\eaglesw\script\20101.cmd		
MGTS Account	mgts102		
MGTS Location	203.02.06	203.03.05	203.02.04
MGTS Configuration – Standard	mgst2030206_default	mgst2030305_default	mgts2030204_itudef
MGTS Configuration – Working	mgst2030206_work	mgst2030305_work	mgts2030204_ituwork

EAGLE Cards:

Location	Type	Application	Location	Type	Application	Location	Type	Application
1101	TSM	SCCP	1201	DCM	IPLIM	1211	ILA	SS7ANSI
1102	TSM	SCCP	1202			1212	ILA	SS7ANSI
1103	DCM	IPLIM	1203	ILA	SS7ANSI	1213	ILA	SS7ANSI
1104			1204	ILA	SS7ANSI	1214	ILA	SS7ANSI
1105	DCM	SS7IPGW	1205	ILA	SS7ANSI	1215	ILA	SS7ANSI
1106			1206	ILA	SS7ANSI	1216	ILA	CCS7ITU
1107	DCM	SS7IPGW	1207	ILA	SS7ANSI	1217	HCAP	ATMANSI
1108			1208	ILA	SS7ANSI	1218	HCAP	ATMANSI
1111	ACM	SLAN						
1112	ASM	GLS						

2.3   Traffic Mixes

2.3.1   Traffic Mix #1: MGTS Generates SCCP Traffic

The 11-1-x mgts ssps attached to 2-11-0 are used to generate sccp traffic that gets global titled at both eagles and returns to the originating mgts ssp where sequence verification and msg loss detection can occur. The 'michael_xu_group' of udms is used. The 'michael_xu_group' is defined w/ UDM #1 = ip7_sccpudt_11_1_35_to_2_16_1, UDM #2 = ip7_sccpudt_11_1_45_to_2_16_1' and so on thru udm #8 (11_1_105) and udm #9 (11_1_25).
- Traffic originates from 11-1-35 thru 11-1-105 destined for 2-16-1.
- The traffic is through switched at 20101 over either lsn e2e3 or ls1105 or ls1107.
- Traffic arrives at 20106 and goes to its sccp card. Global title database converts the new dpc to 2-11-1.
- Traffic is routed back to 20101 over either lsn e3e2 or ls1105 or ls1107.
- Traffic arrives at 20101 and goes to its sccp card. Globabl title database converts the new dpc to 11-1-35 to 11-1-105 based on the originator.
- Traffic is through switched at 20101 over to the correct ss7 card and back to the originating mgts.

The UDMs #10-#18 can be used to send the same basic traffic in the opposite direction (from 16-1-x to 2-11-1 and back again).

1.1.22.3.2   Traffic Mix #2: MGTS Generates NPLT Traffic

The % MSU, MSU Minimum Size and MSU Maximum Size slide bars in the MGTS NPLT screen are used to configure traffic of the desired type to go across the 201.01 and 201.06 Eagle stations.

- The SSPs on the opposite side of each other in the network map send to each other (ie: 11-1-10 to/from 16-1-10, 11-1-x to/from 16-1-x)
- The default Service type to use for this traffic will be SI = 2 (Network Test/Maintenance Messages, special)
- appl rtkeys for all of these point codes, with si=2, will need to be added to the 20101 and 20106 stations.

2.3.3   Traffic Mix #3: MGTS Generates ISUP Traffic

The MGTS SSPs attached to an EAGLE are used to generate ISUP traffic destined to a Talon station having a virtual point code. A MGTS message group, such as 'jac_pr27568,' is used which has several UDMs defined. Each UDM is an ISUP message destined to a specific point codes (typically a Talon virtual point code).

- traffic originates from an MGTS node destined to a Talon station having virtual point code.
- traffic is through switched at the EAGLE over lsn e2e3 and ls1105.
- traffic arrives at the Talon station and Talon replies to the originator.
- reply traffic is through switched at the EAGLE over to the correct ss7 card and back to the originating MGTS node.

The UDMs are 42 bytes in size.

Title:	IP7 Secure Gateway 2.0 MTP Primitives		
Doc No.:	tp002911.docTP002911.doc	Revision #:	1.2
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2.4 Setup Scripts

In addition to the Eagle configuration scripts listed in the preceding tables, a number of additional scripts shall be used during testing. The following table lists the names and capabilities of the various scripts. All scripts are located in *n:\keller\scripts*.

Script Name	Purpose of Script
20101\ent49soc.cmd	Configures additional 49 sockets on each SS7IPGW card (for connection to the other eagle). All sockets are used to carry some traffic. Leave the 49 new sockets in the 'proh' state.
20106\ent49soc.cmd	Same as above but for 20106.
20101\alw49soc.cmd	Allows the 49 new sockets.
20106\alw49soc.cmd	Same as above but for 20106.
20101\pro49soc.cmd	Prohibits the 49 new sockets.
20106\pro49soc.cmd	Same as above but for 20106.
20101\dlt49soc.cmd	Deletes the sockets that were configured in 'ent49sock'.
20106\dlt49soc.cmd	Same as above but for 20106.
20101\entiplrt.cmd	Enter routes to route traffic from 10 MGTS nodes over the IPLIM link.
20106\entiplrt.cmd	Same as above but for 20106.
20101\dltiplrt.cmd	Delete routes that route traffic from 10 MGTS nodes over the IPLIM link.
20106\dltiplrt.cmd	Same as above but for 20106.
20101\dltipgrt.cmd	Delete routes that route traffic from 10 MGTS nodes over the IPGW link.
20106\dltipgrt.cmd	Same as above but for 20106.
20003\ent50ss.cmd	Provision 50 server sockets for dcmpeer1105a and dcmpeer1107a.
20003\ent50cs.cmd	Provision 50 client sockets for dcmpeer1105a and dcmpeer1107a.
20003\dlt50soc.cmd	Delete 50 sockets for dcmpeer1105a and dcmpeer1107a.
20003\alw50soc.cmd	Open and allow 50 client sockets for dcmpeer1105a and dcmpeer1107a.
20003\inh50soc.cmd	Close and inhibit 50 client sockets for dcmpeer1105a and dcmpeer1107a.
20003\ent10key.cmd	Provision 10 route keys to route ISUP traffic from MGTS nodes to Talon point code 5-5-5 over ls1105. Each route key is associated with five sockets. Provision 10 route keys to route ISUP traffic from MGTS nodes to point code 6-6-6 over ls1107. Each route key is associated with five sockets.
20003\dlt10key.cmd	Delete 10 route keys that route ISUP traffic from MGTS nodes to Talon point code 5-5-5 over ls1105. Delete 10 route keys that route ISUP traffic from MGTS nodes to point code 6-6-6 over ls1107. Each route key is associated with five sockets.
20003\ent50cli.talon	Configure 50 Talon clients to connect to Eagle 200.03, 1105.
20003\dlt50cli.talon	Kill 50 Talon clients that connect to Eagle 200.03, 1105.
20003\ent50srv.talon	Configure 50 Talon servers to receive connections from Eagle 200.03, 1105.
20003\dlt50srv.talon	Kill 50 Talon servers that receive connections from Eagle 200.03, 1105.
20003\reply50.talon	Configure 50 Talon clients to reply to ISUP messages.
20003\reply50s.talon	Configure 50 Talon servers to reply to ISUP messages.

Table 3: Scripts

2.5 Hardware Requirements

There are no special hardware requirements for testing this feature other than those documented in the Eagle setup.

2.6 MGTS Configuration

The MGTS configuration is documented in the Eagle setup.

2.7 How to Techniques

SORP settings can be determined using the SOCKSTATE PASS command. Additionally, the MSUCOUNT PASS command can be used to monitor MTP Primitive transmit, receive and discard counts. For example, every time this document mentions "verify the primitive is discarded", the MSUCOUNT command can be used to verify the count has incremented by one.

3. MATRIX COMPLIANCE AND TEST COVERAGE KEY

The following table defines the key used in the Compliance and Test Coverage Columns of the Requirement Matrix:

Key	Meaning
FC	Fully Compliant
PC	Partially Compliant
NC	Not Compliant
FT	Fully Tested
PT	Partially Tested
NT	Not Tested

Table 4: Test Coverage Key

3.1 Requirements Matrix

Requirement ID	Requirement Description	Compliance and Comments (FC, PC, NC)	Test Coverage and Comments (FT, PT, NT)	Test Case
FD-1	The sending of Primitives shall be configurable on a socket basis via inband registration.	FC	FT	FD-2
FD-2	The Secure Gateway shall provide an indication to all IP devices, via a point code/cluster unavailable message, when a point code has become unreachable	FC	FT	FD-8, FD-10
FD-3	The Secure Gateway shall send a point code/cluster unavailable to an IP device in response to a point code status message if the specified point code/cluster is unavailable. The indication will be sent back to the requestor via the same socket which the request was received.	FC	FT	FD-35, FD-36, FD-37, FD-38, FD-39, FD-40, FD-42, FD-44, FD-45
FD-4	The Secure Gateway shall send a point code/cluster unavailable to an IP device in response to a service message if the destination point code/cluster is unavailable. The indication will be sent back to the requestor via the same socket which the service message was received.	FC	FT	FD-28 through FD-32
FD-5	The Secure Gateway shall provide an indication to all IP devices, via a point code available/cluster message, when a point code/cluster has become available	FC	FT	FD-7, FD-9
FD-6	The Secure Gateway shall send a point code/cluster available to an IP device in response to a point code/cluster status message, if the specified point code/cluster is available. The indication will be sent back to the requestor via the same socket which the request was received.	FC	FT	FD-33, FD-34, FD-41, FD-43, FD-46, FD-47, FD-48
FD-7	For TFCs destined for an IP node, the Secure Gateway shall send congestion level indication to all IP devices that match the destination point code from the TFC. The congestion level in the TFC will be used for the congestion level in the indication.	FC	FT	FD-11, FD-27
FD-8	MTPP audit primitives shall be discarded if the total number of messages in the three queues mentioned in the section 3.7 of [3] is above the max_bfr_cnt value of congestion threshold table.	FC	FT	FD-18
FD-9	Point code/cluster availability/unavailability or congestion level primitives shall be ignored if received by the SS7IPGW card.	FC	FT	FD-20 through FD-25

Requirement ID	Requirement Description	Compliance and Comments (FC, PC, NC)	Test Coverage and Comments (FT, PT, NT)	Test Case
FD-10	The Concerned Point Code parameter of all MTP Primitives received shall be validated as a valid point code. The validation consists of verifying byte 3, which indicates the type of point code, conforms to the definition provided by Table 10 of [3]. Otherwise, the primitive will be discarded.	FC	FT	FD-15
FD-11	The Source Point Code parameter of the Request for Congestion Status Primitive (CONG AUD) shall be validated as a valid point code. The validation consists of verifying byte 3, which indicates the type of point code, conforms to the definition provided by Table 10 of [3]. Otherwise, the primitive will be discarded.	FC	FT	FD-16
FD-12	The congestion level parameter in the CONG AUD primitive shall be validated as a valid congestion level. The validation consists of verifying the level conforms to the definition provided by Table 19 of [3]. Otherwise, the primitive will be discarded.	FC	FT	FD-17
FD-13	The Primitive Operation field of each received primitive will be validated as a valid operation value. The validation consists of verifying the value conforms to the definition provided by Table 19 of [3]. Otherwise, the primitive will be discarded.	FC	FT	FD-19
FD-14	Each non-discarded congestion request primitive shall generate a RCT MSU with the DPC, OPC and network priority based on the data in the congestion request primitive.	FC	FT	FD-3 through FD-6
FD-15	Each application sockets will default to disable broadcast phase and response method primitive transmissions and return to default state when the socket closes. The IP device is responsible for re-enabling the primitives.	FC	FT	FD-1, FD-2
FD-16	Each transmitted primitive shall be counted as one unit of work with respect to the transmit capacity.	FC	FT	FD-12
FD-17	Each received primitive shall be counted as one unit of work with respect to the receive capacity.	FC	NT – Rx capacity testing done in [6]	NA
FD-18	The MSUCOUNT PASS command shall be modified to display measurements on a per link basis related the number of primitives transmitted, received and discarded.	FC	FT	FD-3, FD-7, FD-20
FD-19	The SOCKSTATE PASS command shall be modified to display the version of TALI the far end is using and which MTP Primitives are enabled.	FC.	PT – TALI version testing is performed in [6]	FD-2
FD-20	The TALI layer shall provide on a per-socket basis a string indicating what version of the TALI interface that the SG is capable of communicating. This version is also referred as the "near end" capable version.	FC	NT – TALI version testing is performed in [6]	NA
FD-21	The TALI layer shall provide on a per-socket basis a string indicating what version of the TALI interface that the IP node is capable of communicating. This version is also referred as the "far end" capable version.	FC	NT – TALI version testing is performed in [6]	NA
FD-22	The TALI layer shall provide on a per-socket basis a string indicating as to what version of the TALI interface has been negotiated between the SG (near end) and IP node (far end).	FC	NT – TALI version testing is performed in [6]	NA
DD-1	SORP must maintain counts of sockets with MTP Primitives enabled	FC	FT	FD-2

Requirement ID	Requirement Description	Compliance and Comments (FC, PC, NC)	Test Coverage and Comments (FT, PT, NT)	Test Case
DD-2	Connection loss processing must decrement SORP socket counts if necessary	FC	FT	FD-2
DD-3	No broadcast phase messages shall be put on MTP work queue unless at least one socket has broadcast phase MTP Primitives enabled.	FC	FT	DT-8
DD-4	No response method messages requiring replication shall be put on MTP work queue unless at least one socket has response method MTP Primitives enabled.	FC	FT	DT-9
DD-5	Audits will be discarded if socket has closed since the request was generated.	FC	FT	FD-13, FD-14

Table 5: Test Compliance Matrix

4. TEST CASES

4.1 Test Numbering Rules

The following numbering scheme shall be used for unit test case numbers.

$$XX-(Y)-N$$

➢ XX is the prefix for the test group/category using the table below.
➢ Y is optional and is to be used when there are subcategories of tests within a category (i.e., various categories of tests with the Detailed Design section)
➢ N is a sequential numbering scheme used within each category.

Test Category	Prefix
FD Compliance Testing	FD
Specification Compliance Testing	SC
Design Testing	DD
Line of Code Testing	LC
Performance Testing	PT
Sanity Testing	ST
Regression Testing	RT
Command Scripts	CS
Load/Stress/Volume	LS
PR Testing	PR
Fault Insertion Testing	FI
Upgrade Testing	UG

EXAMPLES
FD-1, FD-2, FD-3
DD-1-01, DD-1-02

1.24.2 FD Compliance Testing

This section focuses on the MTP Primitive feature's support for the FD requirements identified in [3].

Test #	Command/Scenario	Response/Result
FD-1	Test that all MTPP and SORP variables are initialized properly. This includes using the SOCKSTATE and MSUCOUNT PASS commands.	Verify SOCKSTATE reports SORP MTP Primitives are disabled. Verify MSUCOUNT reports no primitives transmitted, received or discarded. Verify the MTP state is IDLE. Verify the SORP counts are 0.
FD-2	Verify SORP flags are treated independently and counts are maintained correctly. 1. With no other sockets up, bring up 1 socket 2. Send SORP with broadcast phase only ON 3. Send SORP with broadcast phase OFF 4. Send SORP with response method ON 5. Send SORP with response method OFF 6. Send SORP with both ON .7. Send SORP with broadcast phase only OFF 8. Send SORP with response method OFF 9. Send SORP with both ON 10. Send SORP with both ON 11. Close socket	1. Verify SORP flags for socket is 0 and MTP counts are 0. 2. Verify only broadcast bit is set, broadcast count is 1 and response count is 0. 3. Verify SORP flags for socket is 0 and MTP counts are 0. 4. Verify only response bit is set, response count is 1 and broadcast count is 0. 5. Verify SORP flags for socket is 0 and MTP counts are 0. 6. Verify both broadcast and response bits are set and both response and broadcast counts are 1. 7. Verify only response bit is set, response count is 1 and broadcast count is 0. 8. Verify SORP flags for socket is 0 and MTP counts are 0. 9. Verify both broadcast and response bits are set and both response and broadcast counts are 1. 10. Verify both broadcast and response bits are set and both response and broadcast counts are 1. 11. Verify SORP flags for socket is 0 and MTP counts are 0.
FD-3	Send two identical request for congestion status primitives with the only difference being the congestion level within 0.5 seconds.	Verify that only the first primitive is converted to a RCT and sent to MTP3. Verify the MTP Primitive receive count is incremented by 2.
FD-4	Send request for congestion status when the congestion audit history table is empty.	Verify that a properly formatted RCT is sent to MTP3.
FD-5	Send request for congestion status when the congestion audit history table is full without a match to the requested concerned point code. All of the table's entries should not "age" out.	Verify that a properly formatted RCT is sent to MTP3.
FD-6	Send request for congestion status when the congestion audit history table is full without a match to the requested concerned point code. At least one of the table's entries should "age" out.	Verify that a properly formatted RCT is sent to MTP3.

Test #	Command/Scenario	Response/Result
FD-7	Generate broadcast TFA message with sockets configured as following: 1) at least 2 sockets with MTP Primitives disabled 2) at least 2 sockets with broadcast phase only enabled 3) at least 2 sockets with response method only enabled 4) at least 2 sockets with all MTP Primitives enabled	Verify the point code available primitive is only transmitted on sockets with broadcast phase enabled. Verify using MSUCOUNT that the MTP Primitive transmit count is incremented appropriately.
FD-8	Generate broadcast TFP message with sockets configured as following: 1) at least 2 sockets with MTP Primitives disabled 2) at least 2 sockets with broadcast phase only enabled 3) at least 2 sockets with response method only enabled 4) at least 2 sockets with all MTP Primitives enabled	Verify the point code unavailable primitive is only transmitted on sockets with broadcast phase enabled.
FD-9	Generate broadcast TCA message with sockets configured as following: 1) at least 2 sockets with MTP Primitives disabled 2) at least 2 sockets with broadcast phase only enabled 3) at least 2 sockets with response method only enabled 4) at least 2 sockets with all MTP Primitives enabled	Verify the cluster available primitive is only transmitted on sockets with broadcast phase enabled.
FD-10	Generate broadcast TCP message with sockets configured as following: 1) at least 2 sockets with MTP Primitives disabled 2) at least 2 sockets with broadcast phase only enabled 3) at least 2 sockets with response method only enabled 4) at least 2 sockets with all MTP Primitives enabled	Verify the cluster unavailable primitive is only transmitted on sockets with broadcast phase enabled.
FD-11	Send various TFC messages to a socket that has response method primitives enabled.	Verify all valid fields (i.e. source point code and congestion level) can be generated.
FD-12	Test IPGW transmit scheduler sequencing between MSUs, MTP Primitives and SORP Primitives occurs as expected: 1) all MSUs 2) all MTP Primitives 3) combination MSUs, MTP Primitives and SORP Primitives	Verify transmit capacity is used for each transmitted PDU. 1) 100% MSUs 2) 100% MTP Primitives 3) approximately 60% MSUs, 30% MTP Primitives and 10% SORP Primitives
FD-13	Drop socket connection after sending point code audit to SG.	Verify primitive is discarded.
FD-14	Drop and reestablish socket connection after sending point code audit to SG.	Verify primitive is discarded.
FD-15	Send every type of MTP Primitive with the following values for the control byte of the concerned point code: 1) 0 = ANSI full point code 2) 1 = ITU International full point code 3) 2 = ITU National full point code 4) 3 = unused 5) 4 = ANSI cluster point code 6) 5 = invalid 7) 255 = invalid	Verify primitives for options 4, 6 and 7 are discarded and for all other options the primitive is processed.

Test #	Command/Scenario	Response/Result
FD-16	Send request for congestion status primitive with the following values for the control byte of the source point code: 1) 0 = ANSI full point code 2) 1 = ITU International full point code 3) 2 = ITU National full point code 4) 3 = unused 5) 4 = ANSI cluster point code 6) 5 = invalid 7) 255 = invalid	Verify primitives for options 4, 6 and 7 are discarded and for all other options the primitive is processed.
FD-17	Send request for congestion status primitive with the following values for congestion level: 1) 0 = congestion level 0 2) 1 = congestion level 1 3) 2 = congestion level 2 4) 3 = congestion level 3 5) 4 = unused	Verify primitives for option 5 is discarded and for all other options the primitive is processed.
FD-18	Send excessive point code audit primitives from TALON where excessive is enough audits to exceed the maximum buffer count threshold defined by HMCG.	Verify excessive audits are discarded.
FD-19	Send MTP Primitive with invalid operation field.	Verify primitive is discarded.
FD-20	Send point code available primitive to SG.	Verify primitive is discarded.
FD-21	Send point code unavailable primitive to SG.	Verify primitive is discarded.
FD-22	Send cluster available primitive to SG.	Verify primitive is discarded.
FD-23	Send cluster unavailable primitive to SG.	Verify primitive is discarded.
FD-24	Send user part unavailable primitive to SG.	Verify primitive is discarded.
FD-25	Send congestion destination with congestion level primitive to SG.	Verify primitive is discarded.
FD-26	Send SORP Primitive with invalid operation field.	Verify primitive is discarded.
FD-27	Send TFC with invalid congestion level destined for IP node.	Verify congestion destination with congestion level primitive is generated with invalid congestion level.
FD-28	Send from TALON a MSU with the concerned point code set to the SG's capability point code, the SI set to 3 and SCCP unequipped.	Verify point code unavailable primitive is transmitted to TALON on same socket MSU was received on.
FD-29	Send from TALON a MSU with the concerned point code set to the SG's capability point code and the SI set to 8.	Verify point code unavailable primitive is transmitted to TALON on same socket MSU was received on.
FD-30	Send from TALON a MSU with the concerned point code that has no route in the routing table.	Verify point code unavailable primitive is transmitted to TALON on same socket MSU was received on.
FD-31	Send from TALON a MSU with the concerned point code whose route in the routing table is inaccessible.	Verify point code unavailable primitive is transmitted to TALON on same socket MSU was received on.
FD-32	Send from TALON a MSU with the concerned point code set to the SG's capability point code, the SI set to 3, no SCCP service and MSU requires global title.	Verify point code unavailable primitive is transmitted to TALON on same socket MSU was received on.
FD-33	Send from TALON a point code audit primitive where the concerned point code is the SG's true point code.	Verify a point code available primitive is transmitted on the same socket the audit was received.
FD-34	Send from TALON a point code audit primitive where the concerned point code is the SG's capability point code and SCCP service is allowed.	Verify a point code available primitive is transmitted on the same socket the audit was received.

Test #	Command/Scenario	Response/Result
FD-35	Send from TALON a point code audit primitive where the concerned point code is the SG's capability point code and SCCP service is not allowed.	Verify a point code unavailable primitive is transmitted on the same socket the audit was received.
FD-36	Send from TALON a point code audit primitive where the concerned point code is an ANSI point code which doesn't have a route in the routing table and the cluster is unknown. A cluster is unknown if there is no provisioned cluster entry for the route key and there is no full point code or true/capability point code entry that matches the cluster.	Verify a cluster unavailable primitive is transmitted on the same socket the audit was received.
FD-37	Send from TALON a point code audit primitive where the concerned point code is an ANSI point code that doesn't have a route in the routing table and the cluster is known. A cluster is known if there is a provisioned cluster entry for the route key or there is a full point code or true/capability point code entry that matches the cluster.	Verify a point code unavailable primitive is transmitted on the same socket the audit was received.
FD-38	Send from TALON a point code audit primitive where the concerned point code is an ITU point code that doesn't have a route in the routing table.	Verify a point code unavailable primitive is transmitted on the same socket the audit was received.
FD-39	Send from TALON a point code audit primitive where the concerned point code has a route in the routing table and there is a danger of circular routing as defined by existing SG rules.	Verify a point code unavailable primitive is transmitted on the same socket the audit was received.
FD-40	Send from TALON a point code audit primitive where the concerned point code has a route in the routing table but the route is unavailable.	Verify a point code unavailable primitive is transmitted on the same socket the audit was received.
FD-41	Send from TALON a point code audit primitive where the concerned point code has a route in the routing table and the route is available.	Verify a point code available primitive is transmitted on the same socket the audit was received.
FD-42	Send from TALON a cluster audit primitives where the concerned point code doesn't have a route in the routing table and the cluster is unknown.	Verify a cluster unavailable primitive is transmitted on the same socket the audit was received.
FD-43	Send from TALON a cluster audit primitives where the concerned point code doesn't have a route in the routing table and the cluster is known.	Verify a cluster available primitive is transmitted on the same socket the audit was received.
FD-44	Send from TALON a cluster audit primitive where the concerned point code has a route in the routing table and there is a danger of circular routing as defined by existing SG rules.	Verify a cluster unavailable primitive is transmitted on the same socket the audit was received.
FD-45	Send from TALON a cluster audit primitive where the concerned point code has a route in the routing table but the route is unavailable.	Verify a cluster unavailable primitive is transmitted on the same socket the audit was received.
FD-46	Send from TALON a cluster audit primitive where the concerned point code has a route in the routing table and the route is available.	Verify a cluster available primitive is transmitted on the same socket the audit was received.
FD-47	Send from TALON a cluster audit primitive where the concerned point code is the SG's true point code and is a member of a provisioned cluster.	Verify a cluster available primitive is transmitted on the same socket the audit was received.
FD-48	Send from TALON a cluster audit primitive where the concerned point code is one of the SG's capability point codes and is a member of a provisioned cluster.	Verify a cluster available primitive is transmitted on the same socket the audit was received.

Table 6: FD Compliance Test Cases

4.3   Specification Compliance Testing
Not applicable.

4.4   Design Testing
This section focuses on verifying the design requirements specified in Section 3 of the MTP Primitives DD [5] are implemented.

Test #	Command/Scenario	Response/Result
DT-1	Send request for congestion status when the congestion audit history table is full and the last entry matches the requested concerned point code.	Verify no RCT is generated and the primitive discard count is incremented.
DT-2	Send various UPU messages to a socket that has response method primitives enabled.	Verify all valid fields (i.e. user id and cause code) can be generated.
DT-3	Verify response method replication algorithm by sending a message requiring replication which has the follow characteristics: 1) no sockets with response method enabled 2) no matching routing keys 3) routing key matches for SI=0 only 4) routing key matches for SI=3 only 5) routing key matches for SI=5 only 6) routing key matches for SI of 0 and 3 7) routing key matches for SI of 0 and 5 8) routing key matches for SI of 3 and 5 9) routing key matches for SI of 0, 3 and 5 10) no sockets available	1) Verify primitive is discarded 2) Verify primitive is discarded 3) Verify primitive is sent to sockets 4) Verify primitive is sent to sockets 5) Verify primitive is sent to sockets 6) Verify primitive is sent to sockets 7) Verify primitive is sent to sockets 8) Verify primitive is sent to sockets 9) Verify primitive is sent to sockets 10) Verify primitive is discarded
DT-4	Send SORP primitive with request for current flag settings. Change settings with SORP set command and reissue SORP request to verify set took effect.	Verify valid reply messages are received with the expected values.
DT-5	Send multiple unique requests for congestion status.	Verify SLS values are randomized.
DT-6	Send UPU with invalid user id destined for IP node.	Verify user part unavailable primitive is generated with invalid user id.
DT-7	Send UPU with invalid cause code destined for IP node.	Verify user part unavailable is generated with invalid cause code.
DT-8	Generate broadcast phase TFP message with no sockets configured with broadcast phase enabled.	Verify TFP is not stored on MTPP work queue.
DT-9	Generate response method TFP message with no sockets configured with response method enabled.	Verify TFP is not stored on MTPP work queue.
DT-10	Test that the normalized ISUP functionality works: 1) Display the default setting for the normalized ISUP SORP flag using the SOCKSTATE PASS command 2) Send an ISUP message to the TALON 3) Enable the normalized ISUP SORP flag and verify setting using the SOCKSTATE PASS command 4) Send an ISUP message to the TALON 5) Disable the normalized ISUP SORP flag and verify setting using the SOCKSTATE PASS command 6) Send an ISUP message to the TALON	1) Verify Normalized ISUP is FALSE 2) Verify TALON logs the message received as ISUP and sockstate log indicates ISUP message transmitted 3) Verify Normalized ISUP is TRUE 4) Verify TALON logs the message received as MTP3 and sockstate log indicates MTP3 message transmitted 5) Verify Normalized ISUP is FALSE 6) Verify TALON logs the message received as ISUP and sockstate log indicates ISUP message transmitted

Test #	Command/Scenario	Response/Result
DT-11	Test that the normalized SCCP functionality works: 1) Display the default setting for the normalized SCCP SORP flag using the SOCKSTATE PASS command 2) Send an SCCP message to the TALON 3) Enable the normalized SCCP SORP flag and verify setting using the SOCKSTATE PASS command 4) Send an SCCP message to the TALON 5) Disable the normalized SCCP SORP flag and verify setting using the SOCKSTATE PASS command 6) Send an SCCP message to the TALON 7) Repeat for both Class 0 and Class SCCP messages	1) Verify Normalized SCCP is FALSE 2) Verify TALON logs the message received as SCCPP and sockstate log indicates SCCP message transmitted 3) Verify Normalized SCCP is TRUE 4) Verify TALON logs the message received as MTP3 and sockstate log indicates MTP3 message transmitted 5) Verify Normalized SCCP is FALSE 6) Verify TALON logs the message received as SCCP and sockstate log indicates SCCP message transmitted 7) Both Class 0 and Class 1 should work.

Table 7: Design Test Cases

4.5 Line of Code Testing

The goal of this section is to verify the software design as specified in the DD. This is intended to answer the questions, "Can every possible line of code/decision path be executed?" and "Does every possible line of code/decision path generate the expected results?" The test cases below consist of the paths of code not tested by other test cases in this test plan.

Test #	Command/Scenario	Response/Result
LC-1	When broadcast phase and response method counts are both non-zero, invoke sorp_get_mtp_counts function with invalid SORP MTPP option.	Returned value is 0
LC-2	When broadcast phase and response method primitives are both enabled, invoke sorp_mtpp_enabled function with invalid SORP MTPP option.	Returned value is false
LC-3	Force message on MTPP work queue with an invalid MTPP function id.	Card boots.
LC-4	Send SNM message from MGTS to IP device via SS7IPGW that can't be decoded by DCD library.	Card boots.

Table 8: Line of Code Test Cases

4.6 Performance Testing

The goal of this section is to provide performance related testing for the MTP Primitives feature.

Test #	Command/Scenario	Response/Result
PT-1	Measure time to generate RCT when congestion history is full and there are no matches to the requested DPC.	Record time
PT-2	Measure time to generate RCT when congestion history is full and all entries are exceeding the time to live.	Record time
PT-3	Measure performance of response method replication algorithm in worse case scenario that would include a full routing table with static and dynamic routing keys. Each routing key should the maximum number of sockets associated per routing key possible.	Record time

Table 9: Performance Test Cases

4.7 Command Scripts

Not applicable

4.8 Load, Stress and Volume Testing

This section focuses on testing that is designed to stress the transmit processing and in particular, the transmit scheduler.

Test #	Command/Scenario	Response/Result
LS-1	Card level congestion testing 1) transmit 1990 MSUs/sec & 1 broadcast phase primitive to be replicated to 10 sockets 2) transmit 1991 MSUs/sec & 1 broadcast phase primitive to be replicated to 10 sockets	1) card doesn't enter congestion 2) card enter congestion after approximately 1000 seconds
LS-2	Run overnight duration run with bouncing SS7 links and IP traffic running. IP traffic should include MSUs as well as MTP Primitives because of the bouncing links	Verify traffic can still be sent to IP node after overnight run. Verify no traffic was lost, no primitives discarded and all requests still being processed correctly.

Table 10: Load, Stress and Volume Test Cases

4.9 PR Testing

Not applicable

4.10 Fault Insertion Testing

This section focuses on verifying that the MTP Primitive feature handles faults.

Test #	Command/Scenario	Response/Result
FI-1	Send primitive with MGMT opcode and invalid primitive operation from TALON.	Verify primitive is discarded and neither MTPP nor SORP processing is invoked.
FI-2	Send SORP primitive with reply operation from IP node.	Verify primitive is discarded.
FI-3	Send point code audit primitive from TALON with a cluster point code as the concerned point code.	Verify primitive is discarded.
FI-4	Send cluster audit primitive from TALON with a full point code as the concerned point code.	Verify primitive is discarded.
FI-5	Send point code audit primitive from TALON during full restart.	Verify primitive is discarded.
FI-6	Send cluster audit primitive from TALON during full restart.	Verify primitive is discarded.

Table 11: Fault Insertion Test Cases

4.11 Sanity Testing

Verify major feature(s) are present and functioning correctly in sanity. These tests reflect previous unit test cases that may be executed during the sanity phase of the build process.

Test #	Command/Scenario	Response/Result
ST-1	Execute test case FD-1	See FD-1 response
ST-2	Execute test case FD-2	See FD-2 response ignoring socket counts

Table 12: Sanity Test Cases

4.12 Regression Testing

This section provides a test case matrix that should be used to verify that the MTP Primitives feature is not negatively effecting an existing capability within the Eagle.

Test #	Command/Scenario	Response/Result
RT-1	Send to LSL from MGTS a MSU with the concerned point code set to the SG's capability point code, the SI set to 3 and SCCP unequipped.	Verify TFP is transmitted to MGTS on same link MSU was received on.
RT-2	Send to LSL from MGTS a MSU with the concerned point code set to the SG's capability point code and the SI set to 8.	Verify TFP is transmitted to MGTS on same link MSU was received on.
RT-3	Send to LSL from MGTS a MSU with the concerned point code that has no route in the routing table.	Verify TFP is transmitted to MGTS on same link MSU was received on.
RT-4	Send to LSL from MGTS a MSU with the concerned point code whose route in the routing table is inaccessible.	Verify TFP is transmitted to MGTS on same link MSU was received on.
RT-5	Send to LSL from MGTS a MSU with the concerned point code set to the SG's capability point code, the SI set to 3, no SCCP service and MSU requires global title.	Verify TFP is transmitted to MGTS on same link MSU was received on.
RT-6	Set up GWS such that MSUs and MTP Primitives are copied to SLAN card.	Verify MSUs and MTP Primitives can be transmitted via SLAN interface.

Table 13: Regression Test Cases

4.13 Upgrade Testing

Not applicable

5. TEST RESULTS

5.1 Overall Test Summary

The TOTAL row will calculate automatically when the document fields are updated. Update the cells with the formulas by selecting the entire contents of the document (Ctrl+A) and selecting the F9 command.
Use the following to determine the Percentage Complete (% Comp) and Pass Rate:

$$\% \text{ Comp} = (P+F)/(T-I) \times 100$$

$$\text{Pass Rate} = P/(P+F) \times 100$$

	Test Category	# Tests (T)	Passed (P)	Failed (F)	Blocked (B)	Invalid (I)	UnTested (U)	%Comp	Pass Rate
1.	FD Compliance Testing	48	34	0	0	1	13	72%	100%
2.	Specification Compliance Testing	0	0	0	0	0	0	0%	0%
3.	Design Testing	11	2	0	0	0	9	18%	100%
4.	Line of Code Testing	4	0	0	0	0	4	0%	!Zero Divide
5.	Performance Testing	3	0	0	0	0	3	0%	!Zero Divide
6.	Command Scripts	0	0	0	0	0	0	0%	0%
7.	Load/Stress/Volume	2	0	0	0	0	2	0%	!Zero Divide
8.	PR Testing	0	0	0	0	0	0	0%	0%
9.	Fault Insertion Testing	6	0	0	0	0	6	0%	!Zero Divide
10.	Regression Testing	6	5	0	0	0	1	83%	100%
11.	Upgrade Testing	0	0	0	0	0	0	0%	0%
	Total	**80**	**41**	**0**	**0**	**1**	**38**	**51.90%**	**100%**

Table 14: Test Summary

5.2 Detailed Results

The purpose of this table is to document the results of each test case. An explanation of each column is included below.

➢ Test # – Include ALL test numbers from section 4 of this document during the initial approval of the document. This is an autonumber field based on the test case category.

➢ Status – Indicate the test results
  · P = Passed, F = Failed, B = Blocked, I = Invalid, U = Untested

➢ Comments – Comments are required for all test cases where the Status column is something other than passed (P). A PR number is required for all Failed or Blocked test cases.

➢ Date and Initials – Document the date the test was completed and enter the initials of the person completing the test.

TABLES ARE INCLUDED FOR ALL TEST CATEGORIES FROM SECTION 4 OF THIS DOCUMENT. DELETE ANY SECTION THAT ARE NOT APPLICABLE AND ADD SECTIONS AS NECESSARY

1.1.15.2.1   FD Compliance Testing Results

Test #	Status (P, F, B, I, U)	Comments	Date and initials
FD-1	Pass		10/29/99 JWK
FD-2			
FD-3			
FD-4			
FD-5			
FD-6			
FD-7			
FD-8			
FD-9			
FD-10			
FD-11			
FD-12			
FD-13			
FD-14			
FD-15	Pass		11/5/99 JWK
FD-16	Pass		11/5/99 JWK
FD-17	Pass		11/2/99 JWK
FD-18	Pass		11/2/99 JWK
FD-19	Pass		11/1/99 JWK
FD-20	Pass		11/1/99 JWK
FD-21	Pass		11/1/99 JWK
FD-22	Pass		11/4/99 JWK
FD-23	Pass		11/4/99 JWK
FD-24	Pass		11/1/99 JWK
FD-25	Pass		11/1/99 JWK
FD-26	Pass		11/1/99 JWK
FD-27	Invalid	Software only looks at the bits defined for the congestion level field so invalid bits are never seen.	
FD-28	Pass		11/4/99 JWK
FD-29	Pass		11/4/99 JWK
FD-30	Pass		11/4/99 JWK
FD-31	Pass		11/4/99 JWK
FD-32	Pass		11/5/99 JWK
FD-33	Pass		11/1/99 JWK
FD-34	Pass		11/1/99 JWK
FD-35	Pass		11/1/99 JWK
FD-36	Pass		11/1/99 JWK
FD-37	Pass		11/1/99 JWK
FD-38	Pass		11/1/99 JWK
FD-39	Pass		11/1/99 JWK
FD-40	Pass		11/1/99 JWK
FD-41	Pass		11/1/99 JWK
FD-42	Pass		11/5/99 JWK
FD-43	Pass		11/5/99 JWK
FD-44	Pass		11/5/99 JWK
FD-45	Pass		11/5/99 JWK
FD-46	Pass		11/5/99 JWK
FD-47	Pass		11/5/99 JWK

Test #	Status (P, F, B, I, U)	Comments	Date and initials
FD-48	Pass		11/5/99 JWK

Table 15: FD Testing Detailed Results

5.2.2 Design Testing

Test #	Status (P, F, B, I, U)	Comments	Date and initials
DT-1			
DT-2			
DT-3			
DT-4			
DT-5			
DT-6			
DT-7			
DT-8			
DT-9			
DT-10	Pass		11/6/99 JWK
DT-11	Pass Pass (step 7)		11/6/99 JWK 3/10/00 MED

Table 16: Design Testing Detailed Results

5.2.3 Line of Code Testing

Test #	Status (P, F, B, I, U)	Comments	Date and initials
LC-1			
LC-2			
LC-3			
LC-4			

Table 17: Line of Code Testing Detailed Results

5.2.4 Performance Testing

Test #	Status (P, F, B, I, U)	Comments	Date and initials
PT-1			
PT-2			
PT-3			

Table 18: Performance Testing Detailed Results

5.2.5 Load, Stress and Volume Testing

Test #	Status (P, F, B, I, U)	Comments	Date and initials
LS-1			
LS-2			

Table 19: Load, Stress and Volume Testing Detailed Results

5.2.6 Fault Insertion Testing

Test #	Status (P, F, B, I, U)	Comments	Date and initials
FI-1			
FI-2			
FI-3			
FI-4			
FI-5			
FI-6			

Table 20: Fault Insertion Testing Detailed Results

5.2.7 Regression Testing

Test #	Status (P, F, B, I, U)	Comments	Date and initials
RT-1	Pass		11/6/99 JWK
RT-2	Pass		11/5/99 JWK
RT-3	Pass		11/6/99 JWK
RT-4	Pass		11/6/99 JWK
RT-5	Pass		11/6/99 JWK
RT-6			

Table 21: Regression Testing Detailed Results

APPENDIX A   PEER REVIEW CHECKLIST

Do not delete this checklist. It shall be used at each peer review to ensure that all necessary attributes of the document are included. The moderator is responsible for asking these questions to the quorum prior to the document being voted on.

The following table shall be used during the initial approval of the Unit Test Plan.

Item	Compliance
Template is used and all sections are included (NA sections are so noted, not deleted).	
All applicable TEKELEC documents are cited	
The revision numbers in the header and footer match the number in the change history	
The correct quorum members according to the Peer Review procedure are present for the review of the document	
All applicable external/third party documents are cited	
All equipment required to perform the unit testing is identified and coordination has been accomplished to ensure that the equipment is available during the timeframes needed to perform the testing	
All requirements from the related FD documents are covered by test cases	
All applicable PFS requirements are covered by test cases	
The requirement matrix (section 3) includes all necessary FD and PFS requirements and has traceability to a Unit Test Case Number.	
All test case numbers are documented in the detailed results tables	
All code paths are tested	
All use cases are tested or risk assessed	
All applicable network or other system integration issues are covered or tested at the unit level	
Are any required simulators specified	

Table 22: Document Approval Checklist

The following table shall be used after the test results are entered in this document.

Item	Compliance
Test results are required for every test in section 4.	
The Test Summary table shall be complete and accurate.	
PRs shall be generated for all Failed and Blocked test cases and documented in the result tables in section 5.	
All untested test cases have a plan to have these test cases completed.	
Comments shall be entered in the result tables for all test cases except those that have passed.	
The level of compliance and amount of test coverage shall be documented in the requirement matrix in section 3.	

Table 23: Results Approval Checklist

APPENDIX B   REVIEW SUMMARIES
E-mail to "Meeting Minutes" and Project Team

REVIEW MEETING SUMMARY REPORT

Review: IP7 2.0 MTP Primitives Unit Test Plan
Document: tp002911.doc
Revision: 1.0
Date: October 28, 1999   10AM - 12PM
Author: Keller
Review#: 1
Moderator : Bo Hobbs
Recorder : Joe Keller

Reviewers:

Name	Functional Area	Review Time	Score
Mark Kanode	Software Dev	45 min	3
Bo Hobbs	Product Verification	20 min	3

Not attending:

Tricia Payne	Quality	delegated to Kanode	
John Mason	Marketing	no comments	
Don Hunnicutt	FOA	45 min	3
Dan Brendes	Software Dev	no comments	
Raman Khadri	Software Dev	no comments	

Review conclusion by Moderator ==== 3

    (1) Unable to perform review
    (2) Unable to complete the review, another review required
    (3) Review completed, no more reviews required
    (4) Review completed pending changes, author will route for approval

Average review preparation time : 36 minutes

Actions & Issues
None

General Comments   Actions
1) None
                                          None

Specific Comments	Actions
1) Fig 1 - stations 20201 and 20106 need to be labeled as such so that the traffic mix discussions are clear	Done
2) 2.3.1 - 1st sentence should end in "verification and msg loss DETECTION can occur"	Done
3) Table 5 - FD-17 - verify this is covered in the TALI UTP	Done
4) Test Case FD-12 - What about combinations with SORP? Is 10% the right percentage for MTP? Thought it was 30%. Can you actually generate 2000 MTPP/sec with TALON to test #2	Done
5) Test Cases FD-15,16,17 - Results need to mention validation of ones that are processed normally (ie. valid requests)	Done
6) Test Case FD-27 - Is this really the way it works?	Done
7) Test Case DT-3 - Scenario #10 should say "no sockets available"	Done
8) Test Case DT-3 - Results #3-9, socket should be plural to verify replication	Done
9) Test Case LS-1 - where did 1000 seconds come from in the results? Are we overgranting in IPGW? If so, this would change your numbers.	Done
10) Test Case LS-2 - need to be running MTP and SORP requests along with MSU traffic. Should verify no traffic loss, no MTP/SORP discards, all requests still being processed correctly.	Done

EXHIBIT B

Greg Hunt

From: "Khadri, Raman" <Raman.Khadri@tekelec.com>
To: <ghunt@jwth.com>
Sent: Friday, January 20, 2006 1:18 PM
Subject: FW: Status Report for 11/08/1999 - 11/12/1999

Copy of the weekly status report

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From: Raman Khadri [mailto:raman.khadri@tekelec.com]
Sent: Monday, November 15, 1999 8:50 AM
To: Weekly Status Reports
Cc: NSD DEVIP
Subject: Status Report for 11/08/1999 - 11/12/1999

Weekly Status Report for 11/08/1999 - 11/12/1999

MILESTONES: ('*' indicates change from previous report)

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STATUS (RYGD)	ORIGINAL DATE	FORECAST DATE	NEW DATE	Percentage Completed	TARGET BUILD	Est.Person Days	TASK
Green	10/1	10/15	11/07	95%		1	IP7 2.0 MTP Primitives UT
Green				50%		2	24/25 PR Merge Investigation

TASK DESCRIPTION

ACTIVITIES / ACCOMPLISHMENTS

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Primary : IP7 2.0

Completed 36/37 Test cases of MTP Primitives Feature. One test case is blocked on the availability of Dynamic RTKEY feature.

Build 2.0.0-4-0-0 and 2.0.0-4-1-0 system releases. First one took one day to build and the second one took 0.5 days to build.

Started investigation on 24/25 PRs that need to be merged with IP7 release.   Created a initial list of all PRs that were fixed in 25.0 release till 250P01 release. There are 270+ PRs that were fixed. Started going thorugh each BCR for about 130 PRs so far and have reduced the number of PRs that need to be merged to about 120+ PRs.

Spent about 2 hours reviewing MTP primitives FTP.

Meetings:

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-   None

PLANS

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1. Build 20.5.0.0 bulid

2. Continue to work on 24/25 PR merge investigation.

3. Test the blocked test cases of MTP primitive feature.

ISSUES

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None at present

PLANNED ABSENCES

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12-24-99 to 01-16-2000

COMPLETED MILESTONES FOR 1Q99

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ORIGINAL ACTUAL

DATE   DATE   TASK DESCRIPTION

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8/20   10/12   IP7 2.0 MTP Primitives FD/CS

9/3   10/21   IP7 2.0 MTP Primitives DD

9/3   10/22   IP7 2.0 MTP Primitives code

June, July   Several PR's

5/23/99   UTP : Measurement mods

5/28/99   UT   : Measurement mods

3/19/99   5/7/99   UTP :Connection Manager

3/26/99   5/7/99   UT   : Connection Manager

3/12/99   3/16/99   BCR : SS7IPGW base code

2/12/99   3/10/99   UTP : TOS4V

2/18/99   3/10/99   UT   : TOS4V

3/3/99   3/11/99   UTP : SS7IPGW base code

3/11/99   3/11/99   UT   : SS7IPGW base code

1/27/99   Code : TOS4V

1/26/99   Code : SS7IPGW Base Code

2/1/99   2/8/99   TOS4V and SS7IPGW HLD

1/20/2006